



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/678,720

10/03/2003

Robert C. Lam

01168/DKT00076

6119

43215

7590

03/18/2008

EMCH, SCHAFER, SCHAUB & PORCELLO, CO., L.P.A.

P.O. BOX 916

TOLEDO, OH 43697-0916

EXAMINER

STEELE, JENNIFER A

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,720

Applicant(s)

LAM, ROBERT C.

Examiner

JENNIFER STEELE

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-9, 12, 13 and 29 is/are pending in the application.
- 4a) Of the above claim(s) 23-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-9, 12, 13 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 8/15/2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In view of the Appeal Brief filed on 12/12/2007, PROSECUTION IS HEREBY REOPENED. A new grounds of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Terrel Morris/
Supervisory Patent Examiner
Group Art Unit 1794

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claim 6-9, 12-13 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Lam (EP 1203897) in view of Lam (EP 0971151) in further view of Smith (US 5,965,658). Lam '897 teaches a friction material having fibrous base impregnated with a curable resin wherein the fibrous base material comprising a porous primary layer and one secondary layer. The friction material is comprised of 10-50% of less fibrillated aramid fiber, 10-35% carbon particles, 5-20% cotton fibers, 2-15% carbon fibers and 10-35% filler material (claim 12). The Canadian Standard Freeness (CSF) index of the aramid fibers is at least 300 (claim 6). Lam '897 teaches a porous primary layer and friction modifying particles covering 3-90% of the primary layer surface area (claim 1). Lam '897 teaches friction modifying particles that include silica particles, phenolic resins, silicone resins, epoxy resins and mixtures thereof; fully carbonized carbon powder or particles or partially carbonized powder or particles and mixtures thereof; (claim 5). Lam '897 teaches friction modifying particles in the secondary layer including carbon particles, aramid fibers coated with carbon particles, carbon particles and a retention aid where the friction material must be resilient or elastic yet resistant to compression set, abrasion and stress, have high heat resistance and be able to dissipate heat quickly (pg 4, lines 10-13). Lam '897 further teaches fibrillated fibers and carbon fibers that provide a friction material with improved anti-

Art Unit: 1794

shudder characteristics, high thermal conductivity, porosity strength, and noise resistance (pg 6 lines 5-15). Lam '897 teaches carbon fibers provide friction material with good heat conduction such that the friction material has desired heat resistance (pg 4, lines 10-13). Lam '897 teaches carbon fibers in the primary layer but differs and does not teach carbon fibers in the secondary layer and Lam '897 does not teach the carbon fibers are partially carbonized carbon fibers that are 65-90% carbonized.

Lam '151 teaches a two-ply fibrous base material for use in friction material comprising a secondary layer bonded to a primary layer (claim 1). Lam '151 teaches the secondary layer comprises high temperature resistant, high strength fibers such as aramid fibers, carbon fibers, cotton or other cellulose fibers, fillers and/or novoloid fibers and in certain embodiments, carbon particles and/or graphite particles [0018]. Lam '151 teaches the primary layer and secondary layer can comprise the same or different compositions and can both comprise one or more types of fibers, fillers and friction particles [0041]. Lam '151 teaches carbon fibers are useful in the secondary layer and can be present at a range of 5-30% as a percent of the secondary layer [0044].

Smith teaches a non-asbestos friction material and method of making (ABST). Smith teaches carbon fibers and aramid fibers are preferred over asbestos as fiber materials because the carbon and aramid fibers have superior anti-fade properties that provide benefits for friction material applications (col. 2, lines 10-14). Smith teaches carbon fibers and the disadvantages of carbon fibers (col. 2, lines 58-64). Smith teaches the advantages of using carbonaceous fibers in a friction material as an improvement and replacement for carbon fibers. Smith teaches a brake

Art Unit: 1794

pad comprising 2 to 20% carbonaceous fibers (claim 1). Smith teaches carbonaceous fibers that are 65-80% carbon (ABST). Carbonaceous fibers are equated with partially carbonized fibers.

It further would have been obvious to one of ordinary skill in the art at the time the invention was made to employ carbon fibers in the secondary layer as of Lam '897 motivated to improve the properties of the friction material as taught by Lam '151. It further would have been obvious to one of ordinary skill in the art to employ partially carbonized fibers of Smith as a substitute of the friction fibers and particles of Lam, motivated to improve the properties of the friction material.

As to claim 7 Lam '897 teaches a less fibrillated aramid fibers of about 430 to 650 on Canadian Standard Freeness index in claim 1.

As to claim 8, Lam '897 teaches a less fibrillated aramid fibers of average fiber lengths in the range of 0.5 to 10 mm in claim 19.

As to claim 9, Lam '897 teaches a filler of diatomaceous earth in claim 20.

As to claim 12, Lam '897 teaches a friction material is comprised of 10-50% of less fibrillated aramid fiber, 10-35% carbon particles, 5-20% cotton fibers, 2-15% carbon fibers and 10-35% filler material in claim 21.

As to claim 13, Lam '897 teaches a friction material is comprised of 38 to 40% of less fibrillated aramid fiber, 13-15% carbon particles, 10-12% cotton fibers, 4-6% carbon fibers and 28-30% filler material in claim 22.

As to claim 29, Lam '897 teaches carbon fibers in the primary layer. Smith teaches partially carbonized fibers are an improvement and can be substituted for carbon fibers. Smith teaches employing partially carbonized fibers at 2-20% of the friction material. Smith teaches

the partially carbonized fibers are 65-80% carbonized. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ partially carbonized fibers in the primary layer.

Terminal Disclaimer

2. The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/666,090 has been reviewed and is accepted. The terminal disclaimer has been recorded.
3. The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/678,598 has been reviewed and is accepted. The terminal disclaimer has been recorded.
4. The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,182,804 has been reviewed and is accepted. The terminal disclaimer has been recorded.
5. The terminal disclaimer filed on 5/17/2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/678,599 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

6. Applicant's arguments with respect to claim 6-9, 12-13 and 29 have been considered but are moot in view of the new ground(s) of rejection. The previous 35 USC103(a) rejection with

respect to Lam '897 in view of Brassel and Tradewell has been withdrawn and new grounds of rejection with respect to Lam '897 in view of Lam '151 and Smith presented.

7. Applicants argue that Lam '897 does not teach carbon fibers in the secondary layer. As Lam '897 teaches carbon fibers in the primary layer and teaches carbon particles in the secondary layer, Lam '151 has been presented in this Office Action as evidence that carbon fibers can be used in the primary and secondary layers of the friction material and the composition of the primary and secondary layers can be the same. Further Lam '151 teaches the advantage of carbon fibers in the secondary layer. Therefore Lam '151 presents a finding the one of ordinary skill in the art could of substituted the carbon particles of Lam '897 for the carbon fibers of Lam '151.

8. Applicants argue that Lam '897 does not teach partially carbonized fibers and the references to Brassell and Tradewell are nonanalogous art. References to Brasell and Tradewell have been withdrawn. New reference cited to Smith teaches partially carbonized fibers that are used in friction materials such as brakes and is analogous art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

3/5/2008